When on the point of becoming a pupa, the nervous lobes above the œsophagus are found to be considerably enlarged, and to have assumed more of the appearance of a cerebral mass; while, at the same time, the nervous cords descending from them are shortened and thickened. The ganglia are brought nearer together, and their intervening cords lie between them in an irregular manner, the ganglia themselves being retained in their proper places in the segments by the nerves running transversely from them. The nerves of the antennæ are enlarged, and the optic nerves are become much thicker and shorter than before. There is a remarkable enlargement of the thoracic nerves, particularly of those sent to the wings; and those belonging to the posterior pair of legs are curiously convoluted within the thorax, preparatory to their being uncoiled at the instant of the change being made to the pupa state.

These changes are followed minutely through several stages of development. The author expects to be able to lay before the Society, in a subsequent paper, the results of his investigation of the remaining stages, and to offer some observations upon the manner in which these changes are effected.

The Society then adjourned over Whitsun Week to the 21st of June.

June 21, 1832.

HIS ROYAL HIGHNESS THE DUKE OF SUSSEX, K.G.
President, in the Chair.

Papers were read, bearing the following titles:

1. "An Account of the magnetical Experiments made on the Western Coast of Africa in 1830 and 1831," by Commander Edward Belcher of H.M.S. Etna. Communicated by the Rev. George Fisher, M.A. F.R.S., through Captain Beaufort, R.N. F.R.S.

The object of the inquiry specified in this paper, and of which the results are given in a tabular form, was to determine the relative horizontal intensities of terrestrial magnetism on the different parts of the coast of Africa which the author has been lately employed in surveying. The experiments were made with four needles constructed by Dollond on the model of those of Professor Hansteen; and the permanence of their magnetism during the voyage was verified by a comparison of trials made in England before and since the voyage. Errors arising from local causes of irregularity were guarded against by varying the places of observation at each station, and taking mean results.

2. "On the Use of a substance called the *False Tongue* in Foals," by Professor Sewell, of the Royal Veterinary College. Communicated by Sir Charles Bell, F.R.S.

The substance called the *false tongue*, which is thrown out from the mouth of the foal, either at the period of birth, or shortly before it, and to which various whimsical uses and virtues have been assigned, is conceived by the author to be requisite in this animal for the action of sucking, in consequence of its not respiring through

the mouth, but altogether through the nasal passages: an instinctive feeling prompting it to supply the loss of that substance by sucking the teat of the mother. Dr. Prout, who analysed a portion of this substance at the request of the author, finds it to be composed principally of coagulated albumen slightly modified. The author regards it as a secretion from the tongue of the foal.

3. "Journal of the Weather, kept at High Wycombe during the year 1831, with monthly Observations," by James G. Tatem, Esq. Communicated by William Allen, Esq. F.R.S.

These tables exhibit the greatest elevations and depressions of the barometer and thermometer for the year 1831, together with the means of the observations, which were made at 8 A.M., 3 P.M., and 10 P.M.; the extremes of cold being given by a self-registering thermometer. The quantity of rain was measured every morning at 8 o'clock. The course of the wind is noted, and remarks subjoined, showing the results of a comparison with former years.

4. "Physical and Geological observations on the Lake of Oo near Bagneres de la Chou, in the year 1831," by M. Nerée Boubée, Professor of Geology at Paris. Communicated by P. M. Roget, M.D. Sec. R.S.

The author ascertained that the bottom of the lake, which is 230 French feet in depth, forms a level plane of great extent, and is covered with a stratum of mud composed of fine micaceous sand of a blue colour. The temperature of the bottom of the lake was 7° of the centigrade scale, at the middle 9°, at the surface 11°; that of the air varying from 14° to 15°. There was no indication of any current on the surface. A cascade 954 feet in height falls into the lake, carrying down the detritus of the surrounding rocks.

5. "Observations on the anatomy and habits of Marine Testaceous Mollusca, illustrative of their mode of feeding," by Edward Osler, Esq. Communicated by L. W. Dillwyn, Esq. F.R.S.

The author observes that in studying the physiology of the Mollusca, more satisfactory results may generally be obtained by tracing the organization connected with each important function, through different families, than by complete dissections of individual species; and, by thus connecting the study of function with that of structure, the zoologist is led to more certain inferences relating to those habits, the knowledge of which the pelagic character of the animal, and the difficulty of direct observation, would otherwise have rendered unattainable. The present paper is devoted to the anatomical investigation of the organs by which the food is received into the bodies of certain Mollusca. The herbivorous Mollusca which the author has examined have three modes of feeding. Some, as the *Trochus crassus*, browse with opposite horizontal jaws: others, as the *Turbo littoreus*, rasp their food with an armed tongue stretched over an elastic and moveable support: while others again, as the *Patella vulgata*, gorge it entire. The author enters into a minute anatomical description of the organs of manducation and deglutition, and also of that part of the nervous system situated in the neighbourhood of these organs, in each of these respective Mollusca,—illustrated by numerous draw-